

Heritage, Productivity, and Revolution in the
Agriculture Sector

Oman's Green Economy

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INSIGHTS

The Future of Organic Farming in Oman

Adam Al-Said, Yuzu Agriculture





We strive towards a future in which every person will have access to organic, delicious, locally grown produce that is packed with nutrients and available at a price no more expensive than conventionally-grown (non-organic) produce today.

We're here to bring that joy when you bite into that deliciously sweet tomato, and to keep you healthy and feeling at your best. As many of our clients would tell you, we're already well on our way to that, having achieved a supply of organic leafy greens and herbs at prices lower than conventionally-grown imported equivalents today at top notch quality levels.

We started extremely small, growing no more than a handful of different products, and serving only a few key players in the hospitality industry. We approached our beginnings with an all-hands-on approach – starting our agricultural careers in working the most essential day to day farm activities - from harvesting in the early hours of the morning to personally delivering our hand-picked produce to our customers.

We believe that such ways of working present many opportunities for innovation – working on the frontline provides many sources of inspiration for innovative ideas. Today, four years later, we feel that this way of working has enabled us to get much further ahead in our journey to become a truly top-tier, innovation focused work culture.

As the farm began to grow, we took on a broader focus of pursuing excellence in all spheres – lis-

tening attentively to our customers' needs, developing and installing exciting product, service, and agricultural innovations such as ERP apps, sensor packages, automation hardware and software, inspiring positive change in people. This has proved especially useful as we continue to grow in the faster paced, highly competitive, and somewhat more complex direct-to-consumer route, where fast information and even faster action makes a huge difference.

You can now find our produce across Oman from the mountains of Jebel Akhdar all the way to retail stores in Salalah and Sohar. We have been lucky on our journey to have the support of so many hospitality veterans, social influencers, home cooks, and friends and family, as well as a beautiful farm location with naturally enriched wadi soils.

Shifting Focus to Oman's Broader Agricultural Sector

Oman's agriculture sector has fared well over the past decade. While accounting for only 2.4% of the nation's GDP, it has had strong growth, with its value growing at a rate more than twice as fast as the rest of the economy in recent years (World Bank 2015-2019). From a food security perspective Oman is said to be one of the most

self-sufficient in the GCC, with around 75% of vegetable consumption sourced from local farms (Ithraa, 2019), and with reportedly similar levels for fruits (Alpen Capital, 2016). The gaps in self-sufficiency in dairy and meat, hitherto heavily import dependent food categories, are likely to narrow in coming years with new projects in the sectors.

Several areas have contributed to the sector's success. Confident and committed public led investment into the sector has created growth in multiple areas such as a national dairy powerhouse Mazoon Dairy, new fishing marinas raising productivity of Oman's small-scale fisherman and a new project Al Bashayer promises to substantially increase Oman's local production of grass-fed livestock.

Multiple support measures have also been provided to grassroot agriculture players. One can receive government support for new fishing boats, agricultural machinery, and receive a visit from the agricultural extension office to help solve various conventional agriculture problems such as pest and disease outbreaks.

From a consumer standpoint, support for local suppliers stands higher than ever. Multiple major retailers such as Carrefour and Lulu frequently have 'support local' campaigns. A 'Made in Oman' program launched by the Ministry of Commerce aimed to raise awareness of small local players needing a marketing boost.

Where do we go from here and what will be required?

With so much being done in the agriculture sector, we're excited to look at where we go from here. What exactly should we be aiming for? And what is needed for us to get there?

With self-sufficiency rates relatively high already, it could mean that we are nearing a ceiling for how much local production can grow further in terms of substituting for imports. As we move closer to full self-sufficiency various challenges will naturally become more limiting – the inherent seasonality of the agriculture sector and the need for costly greenhouses to keep farms going over summer, the need for more diverse climates and research to grow agriculture's 'higher-hanging-fruit' not necessarily suited to our climate, and of course securing growth in ever growing, more specialised niches of the food market such as the organic market.

With this in mind, if the theme of the past decade was characterized by increasing import substitution, we see a transition in the next decade towards two fronts. The first is in becoming a net exporter in the food categories in which we have a national comparative advantage (perhaps fisheries and vegetables), and the second is becoming a truly innovative agricultural sector with new growth based on creating and adventuring in new niches, leveraging new technologies, and rethinking what was previously considered



possible in terms of what we can produce as a country today. We believe the next decade to be driven by original ideas, persistent private sector entrepreneurship, and old-fashioned grit.

In order to deliver this transition, we think a few key drivers will be necessary. First, we need to form an opinion through extensive commercial trials about which agricultural technologies are sustainable and competitive in the long run with easily accessible data – sometimes a low-tech approach, for example by shifting locations across Oman’s diverse climates can make more sense than constructing costly, energy intensive greenhouses. Second, we will need to build standardization and trust through certification as we build the agricultural brand of Oman internationally, particularly on international concerns over pesticide use. Third, we need to find innovative solutions and equip our farmers with the knowledge to solve pressing issues such as growing soil salinity levels. Fourth, we need to further encourage the growth of niches by fostering entrepreneurship – regulation can help pave the way in this area particularly in the organic niche for example, where no regulation exists today on who can call their products organic. Imports for various inputs not currently available in Oman that are needed for new sectors can be made easier to attain with limited release fast-track processes vs currently lengthy and costly procedures today.

A fifth potential measure extends to developing policy to ration and influence the use of precious groundwater reserves (the main source of water for local agriculture). The aim of such policy should be to ensure that the environmental cost of ground water withdrawal is factored into crop prices especially when concerning international trade. Trade in food from an environmental perspective can be seen from an alternative lens as trading water (given that so much is used to grow food). Importing food from others means using less of national water reserves to grow our own. The question to be answered then becomes - is the value of our limited water reserves appropriately reflected in the prices we are charging and are we competitive at those prices? And more interestingly, how much value are we adding to the inherent cost of water (e.g. higher quality levels, better supply chain, better service), and do we add more value as an exporter than the countries we can import food from? Such questions have complex answers – but answering them will reveal much about our sector and its *raison d’être* on the international stage from both an economic and sustainability viewpoint.

Such a transition does not necessarily come easy, particularly due to agriculture’s somewhat high sunk costs (assets that cannot easily be reclaimed in value or repurposed for other uses), reducing the speed with which entrepreneurs can move on to new ways of operating. In the path to innovative agriculture, already multiple



closures have happened in the past particularly on higher tech hydroponic farms – Water and Life, an ambitious state-led hydroponic tomato farm stretching over 10 hectares of greenhouse space closed its doors in 2017 after operating for five years, with numerous other private sector closures. Many who still operate exist in a ‘zombie’ state – neither failing nor taking off, existing just to pay off debt and provide a minimal return on sunk investment costs. Rising electricity tariffs (due to the lowering of state subsidies), a major cost input for high tech agriculture – from cooled greenhouses to towering vertical farms - also promises to shelve many proposals once considered feasible.

While it stands to reason that such openings and closures of companies are needed as the sector rationalizes what makes sense in the context of our market, well directed public investment towards research and pilot projects for non-commercially proven technologies can be helpful in this area to save the private sector of the research costs. Full-scale state led production projects could also be fruitful so long as they focus on gaps not filled by the private sector to avoid crowding out private sector players.

Yet more interesting research is currently happening in grains at a regional level, a food category with potential for the highest impact given that a staggering 90%+ of Oman’s grain consumption is imported. Such commodities (e.g. rice, maize, and corn) tend to be highly water intensive and not fully suited to Oman’s climate. Extensive discussion has been had over whether it makes sense for sustainability reasons to fully localize this area of agriculture at all. This presents an opportunity – ICBA, a UAE based agricultural think tank, has led interesting research into varieties of quinoa more suited to Oman’s arid climate that could, with the support of people changing their tastes, launch a new level of sustainability and security in local grain consumption. We look forward to more research to come.

Overall, we believe the future is bright for the shifting gears of our agricultural sector, and we as a sector benefit from the momentum and attention given by many stakeholders as one of the bright spots of Oman’s economy. The next decade in some ways may be more challenging as we look towards markets increasingly more ab-

stracted from traditional agriculture. In any case, we maintain our optimism for the future – we will see you there.

About YUZU Agriculture

YUZU Agriculture was founded in 2016 with the goals of transforming the Oman organic produce market in reaching new levels of accessibility, quality, and sustainability.

To learn more about them head to their [website](#) and listen to a podcast we recorded with them [here](#).



INSIGHTS

Oman's First Commercial Farm

Shawn Basson, CEO Nehad Agronomy Services LLC





A brief first look at Oman's topography and climate often leads people to assume that the country is arid, barren and devoid of any kind of agricultural activity. However, nothing is further from the truth.

Farming, or settled agriculture, is despite what many think, one of the industries dating back to the beginning of the 3rd Millennium BC in Oman, and has together with fishing and trade, contributed to shaping the country we see today.

The country is broadly divided into desert, mountains and sea and each tied to unique lifestyle patterns and activities.

The climate is characterised by fierce heat and rainfalls are extremely limited, averaging less than 102mm each year and mostly concentrated in the mountains. The few times it does rain, it is more often than not in the form of a short, heavy downpour, rather than a steady shower, and is quick to dissipate. It is the scarcity of water which has, without question, been the single-most defining influence on the development of agriculture in Oman. A key factor for success under such harsh conditions was the management and storage of water. Across much of Oman, water was traditionally obtained and distributed through an elaborate network of irrigation channels (known as falaj/aflaj) either from natural springs or underground water sources. Even today, the irrigation system continues to be a lifeline for towns and villages and allows for cultivation of land that would otherwise be desolate.

It has often been said that the landscape here in Oman is 'confronting and challenging rather than embracing' and offers a fine line between survival and prosperity.

So why choose to set up our farm under such unforgiving conditions?

Well, on a clear day one can see the Hajar Mountains from the Nehad farm. The mountain range stretches for more than 500 km along the Batinah coast and reaches a height of almost 3000m.

These mountains are a vital catchment area for rainwater and deposits of silt washed down onto the plains have resulted in some extremely fertile soil. In addition to this, the area has plentiful supplies of groundwater, making for excellent wells.

It is therefore not surprising that Sayyid Al Mutasim Bin Hamoud al Busaidi established Oman's first commercial farming enterprises in 1979, in exactly this place. With a humble 20 acres, the farm started with only a handful of traditional crops, with traditional Omani dates being one of them. The conditions along the coastal plain are ideal for the cultivation of the date palm, which according to Omani folklore has to 'have its head in fire and its feet in water'. The date palm is without a shadow of a doubt, the most important of Oman's crops and is often referred to as 'the tree of life'. As a food source, the date is unbeatable and the annual yield from a single tree may be as much as 270 kg.

To this day, the Nehad farm still grows the most popular varieties of Omani dates like Khalas, Khunaizi and Fardh.

The farm not only produces and exports dried dates, but has developed an assortment of date syrups, date vinegar, date biscuits and chocolate



syrops, date vinegar, date biscuits and chocolate covered dates and added to the product list.

Expansion

The key to expanding successfully is often a company's ability to be innovative, having a finger on the pulse and understanding the consumer's preferences and current trends. Long gone are the days of Nehad Agronomy Services producing only a handful of crops for the local market. Today it is a multi-million dollar enterprise spread over multiple locations in Oman, with a total cultivated area of over 2200 acres, employing 300 permanent staff in addition to seasonal workers, and exports its produce not only to the neighbouring Gulf countries, but also the Japanese and European markets.

Our company has expanded dramatically in all areas of cultivation and now has a product mix of traditional crops like tomatoes, melons, carrots and sweetcorn alongside more unusual produce for the Gulf, such as broccoli, kale, Swiss Chard, leeks and even strawberries. The company is forever experimenting with new crops and varieties and pushing the limits for what is considered possible to grow in a desert country, which virtu-

ally is astride the Tropic of Cancer. Nehad Agronomy Services has proven that with determination, greenhouses and the right technology, it is possible to successfully grow and even export exotic flowers like lilies, roses, Calas lilies, chrysanthemums and even gladiolus.

Of course such achievements and the secrets of the trade are kept close to the chest, but it is no secret that in an industry which still, to a large extent, relies heavily on hands-on manual labour, Nehad's production has moved into a new generation of farming practices, combining agriculture and technology.

New Technology

In order to optimise productivity and output, the farms are now using tailor-made management software to track the business resources and capacity. Through a digitalized task calendar, the farm managers get daily analytics and details on the water amount, fertilizers and practices to be followed. This has improved the overall efficiency of the farms by 25%, and worked towards identifying the right product mix for the market in every season.

Although the farms have their own wells, typically at a depth of 30m or more, water and water management is always a huge factor. With the farm ERP (Enterprise Resource Planning) technology the company was able to save 5% on water consumption cost.

Special emphasis is on the post harvesting technology which includes packaging and transportation, worth mentioning is that the company has the only fully automatic tomato grading line in the entire Gulf region, grading tomatoes on colour and weight. With our own cold stores on site and a fleet of GPS monitored refrigerated trucks, the vegetables and flowers are guaranteed to stay fresh from farm to shelves.

The Future

As global consumers become more health conscious and seek alternatives to conventional farmed produce, our company has been sensitive to this shift and crops are produced using proven environmentally safe fertilizers and chemicals. We have set up our own composting unit for in-house production of organic manure whereby reducing the dependency on chemical fertilizers.



The future looks bright for farming in the region. Much research is being done to address the main issues of water scarcity and alternatives to conventional farming methods are being tested. Hydroponic and aquaponics farming are predicted to receive huge growth opportunities as the Gulf countries acknowledge an increasing need for food security. Experts believe that with correctly applied farm management technologies and/or a potential for hydroponics adaption in the region, the Middle East can eventually rank amongst the top food produce exporters in the world.

The future is bright – the future is green.

About Nehad

Established in 1979, NAS is an agricultural company owned by Sayyid Al Mutasim Bin Hamoud Al Busaidi. At Present NAS is cultivating over 1400 Acres, producing and exporting Sweet Melons, Watermelons, Beans, Green Peppers, Colour Sweet Bell Peppers, Cherry Tomatoes, Tomatoes, Cauliflower, Cabbage, Squash, Eggplants, Lettuce, Mango, Dates, Carrots and Lily Cut Flowers.

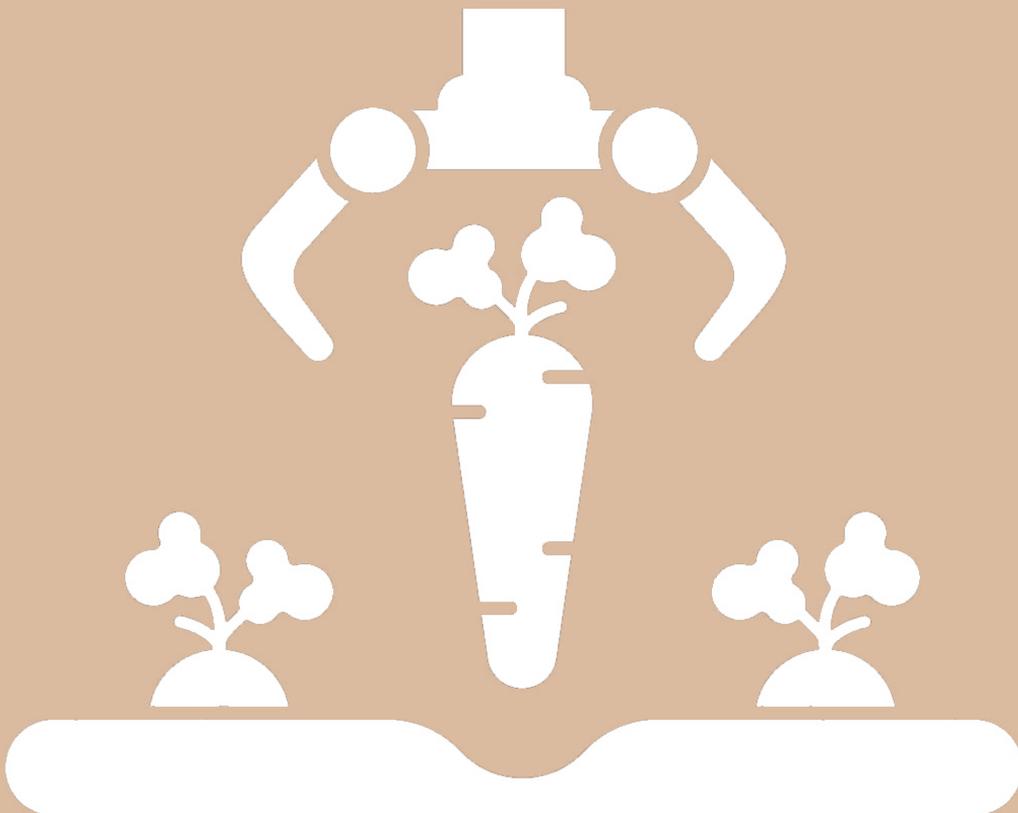
Nehad Agronomy Services LLC is the first commercial farming enterprise in Oman, the company is located in the Batinah Region and was established in 1979 with a total area of only 20 acres. At the time of this humble beginning, only a handful of traditional crops were grown. These were dominated by dates, watermelon, sweet melon and tomato. Over the last several decades, the company has grown dramatically in all critical areas of cultivation, product range, post harvest technology, and cold chain management. Nehad Agronomy Services LLC now boasts of a cultivated area of 1400 acres, spread over 6 locations, and produces world-class fruits and vegetables.

To learn more about Nehad click [here](#).

INSIGHTS

How Oman Can Lead The Agricultural Revolution In The GCC

Agriecture





With an ever-increasing population moving into cities and away from traditional field farming, the world has never had a more urgent need for sustainable and local food production. This challenge is made more aggressive by factors like climate change, creating increased food insecurity through a lack of arable land and limited water supplies.

Incoming entrepreneurs looking to turn this around by starting urban farms are overwhelmed by the numerous options on the table. This often leads to them making poor financial decisions, and improperly planning their farms. This is where the leading agricultural consultancy Agritecture steps in.

Originating from a blog in 2011 with founder [Henry Gordon-Smith](#), Agritecture works to support incoming entrepreneurs in navigating this crucial planning stage for their urban farming business, to avoid costly mistakes. “With a mission to empower impact-driven organizations to develop sustainable urban farming solutions, [Agritecture](#) focuses on turning business ideas into practical realities,” says Agritecture’s media strategist, [Briana Zagami](#).

Oman redefining agriculture in the GCC

Agritecture has noticed an increased interest in the agtech space from the Omani community. Whilst much of the GCC region has only shown interest in urban agriculture in the recent decade, the Omani government has been pushing for increased agricultural ventures for quite some time. The main cause for this is Oman’s greatly contrasting landscapes, enabling increased food production in comparison to the rest of the re-

gion.

According to Gordon-Smith, “Oman is unique relative to its neighbours because of its range of microclimates that foster specialized agriculture products. For example, the Al Hajar Mountains have cooler weather and more rainfall fostering the production of pomegranates and rose water in places like the Jebel Akhdar, the green mountain.” In travelling from these mountains to the sea, one would notice wadis with small orchards or groups of banana trees cultivated by small-holding farmers. The Omani community fosters such production by use of “ancient irrigation techniques like their falaj systems to bring fresh water to field farmers.” Additionally, “in the south, the unique climate and rainy season of Salalah allows for the production of more tropical crops like coconuts”. Through this vastly ranging landscape, [Oman is able to be the most self-sufficient in food production amongst GCC countries.](#)

During the lockdown, Gordon-Smith had the pleasure of being in the country along with [Majid Al-masrouri](#), Agritecture’s Regional Ambassador for Oman and the Middle East. The two made valuable use of their time in quarantine by choosing to share Agritecture’s mission and their knowledge of CEA with the Omani community.

“One way we did this was by visiting [Teejan Podponics](#), one of the first vertical farms in the GCC that is located in Barkaa, just outside of Muscat. We toured the vertical farm and shared our knowledge with the CEO, who we are still in talks with to help plan their international expansion,” said Gordon-Smith. The two also [interviewed leading policy makers in agriculture](#), including [Saleh Alshanfari](#), and used any spare time to give lectures on controlled environment agriculture and its potential for the country’s food security.

Oman’s growing need for CEA

Gordon-Smith shares that “Oman’s climate is still a challenging one for year-round food production. With challenges to supply chains like Covid-19 and climate change shocks becoming more frequent, it is important that Oman invests in Controlled Environment Agriculture (CEA).”

Not only will increased urban farming support the country’s food security and economic development, it will also “foster youth to engage in agriculture as it allows for them to develop farms and agri-businesses closer to the cities where they want to live. Finally, with Oman’s strategic geographical location, it could become a hub for

export of foods across the GCC.”

Al-masrouri shares how he has seen the agtech industry changing in Oman, claiming that the Omani Government has been a huge supporter in this mission. Whilst the industry is very new to Oman, under the support of the Ministry of Agriculture and in line with the Oman Vision 2040, “successful entrepreneurs and experienced farmers can collaborate with other farmers around the country to benefit and access free resources and data. Additionally, the Oman Food Investment Holding Co. and other Government-related entities are working to develop diversity and advancement in the agtech industry and enable more technology within agriculture.” In this manner, an agricultural community is created.

With Covid-19 influencing Oman’s relationship with food security and safety, Al-masrouri comments that “the Government is heavily focusing on self-sufficiency via local production, thus enabling farmers to have more options to grow in the future”. So far, only “a select few high-tech greenhouses and vertical farming operations have arisen in Oman”. However, with increased governmental support and agricultural regulations being modified to preserve farmlands and



focus on sustainable agriculture, the country is well on its way to become a leader in this agricultural revolution.

The realities of vertical farming in Oman

Alongside this support from the Omani Government, Omani consumers have shown an increased level of health awareness, leading them to support and brag about Omani produce. Al-masrouri says that “consumers highly trust local produce, and support local production because high-quality and affordable products are amongst their main demands”.

Even though this support from the Omani Government and consumers has encouraged entrepreneurs to step up to the challenge, most are finding it difficult to break into the industry. Al-masrouri explains that “Oman is still not benefiting from vertical farming because of the limited number of operations, even though agtech is being highly encouraged by the Oman Vision 2040”. He claims that “Oman needs to invest in the know-how first, in order to prepare young talent to further agtech for and in the country”.

Additional challenges for the country and its farmers include consumer acceptance of the high initial prices of local produce, and energy consumption of vertical farming operations.

The future of agriculture in Oman

While these challenges stand in the way of entrepreneurs hoping to make the country more food secure, Gordon-Smith firmly believes that “Oman can be the regional agriculture and technology leader”.

In the future, agritourism can open new financial streams for the country, whereby “long-stay eco-tourists interested in learning the latest and greatest methods for sustainable agriculture can come to meet and learn” about permaculture, agroforestry, and CEA.

Additionally, an agriculture technology port in Duqm, Oman, could exist to help “produce, process, and trade sustainable food for the region,” thus establishing Oman as a leader in regional food production, and inspiring a new generation of agriculture entrepreneurs.

To help make this dream a reality, Agritecture offers a breadth of services to meet the needs of incoming entrepreneurs at various project stages. The company’s entry-level service, Ask Agritecture, allows entrepreneurs a 30-minute call with Agritecture’s experts to answer any economic and technology related questions. The Commercial Urban Farming course educates entrepreneurs in the best agricultural practices in six comprehensive lessons complete with short video modules and additional resources. Launching in April 2020, Agritecture’s newest addition, Agritecture Designer, is the world’s first digital platform enabling entrepreneurs to hone in their vision and build their agricultural models, with the support of data-driven metrics and experts.

About Agritecture

Agritecture was founded by Henry Gordon-Smith in 2014 to help entrepreneurs navigate the crucial planning stage for their urban farming business and avoid costly mistakes. Since then, Agritecture has grown into the world’s leading advisory firm on urban and controlled environment agriculture, working with clients of all types - from entrepreneurs, to investors, to technology providers - in more than 25 countries.

To continue highlighting the latest innovation and pushing the industry toward greater transparency, our content team maintains an active blog, social media presence, and email newsletter, counting more than 125,000 active followers. In 2020, we launched our own software platform.

[Agritecture](#) is comprised of a global team of interdisciplinary consultants that rely on an ever-expanding dataset and a proven methodology, having completed more than 130 projects to date.